

## DR. RITTERBANDT'S INVENTION

TO PREVENT INCrustATIONS IN STEAM BOILERS.

THE process consists merely in converting all the carbonate of lime into chloride of calcium, by the introduction into the boiler of a small quantity of chloride of ammonium. In this way, the lime remaining constantly in solution, the boiler cannot foul, and fuel is saved to a great extent. Nor is this the case merely with fresh water. Dr. Ritterbandt's experiments prove that when sea water is boiled, the first change is the liberation of carbonate of lime, the excess of carbonic acid being driven off by heat, and that the particles of that compound become nuclei for the adhesion of the crystals of common salt, &c., which begin rapidly to form in consequence. In preventing the formation of carbonate by the introduction of chloride of ammonium, the chemical effects of contact are obviated, and no salt can be deposited until the water is almost evaporated away. This invention will do away with the necessity of blowing off so very frequently, and will supersede the brine pumps, both attended with an excessive loss of heat and waste of fuel.

## A NEW MODE OF PREPARING LEATHER.

To a commercial country like Great Britain, and indeed to the world at large, the manufacture of leather must always be a matter of the first importance, whether we consider its value in the construction of most implements of husbandry, its use in mechanical trades, in the multitude of innumerable engines and machinery of every description, and in our manufactures, or as an article of general consumption in the production of those things which conduce so much to our domestic comforts and necessities. The article of leather has always ranked in point of value and extent as inferior only to cotton, wool, and iron; indeed, some statistical writers have gone so far as to consider it equal, if not greater, than cotton. From this circumstance, and as, according to the statement of those practically acquainted with the subject, 170 to 180 parts of leather might be obtained from 100 parts of dry hide, instead of 50, if every part of the gelatinous tissue could be made to combine with a full proportion of tannin, some idea may be formed of the advantages to be derived from any improvement in the art of tanning. And yet notwithstanding these important facts, it is equally true that in this enlightened age, when almost every other branch of the arts has made such rapid strides towards perfection, little, if any progress has been made in improving the art of tanning.

A patent for "a new mode or method of more speedily and effectually tanning hides and skins" has been recently obtained by Dr. Turnbull. The inventor seems to have been impressed with the important fact, that a knowledge of the disease was necessary to the cure, and to have brought in the study of his subject great scientific knowledge and research. In his specification, which is now before us, in pointing out the various difficulties in tanning, he says: "In preparing the skins and hides for the tannin, they are steeped for a considerable time in a solution of lime to remove the hair and epidermis. In this process, the skin imbibes a considerable quantity of lime, which has the effect of either removing from the hide, or skin, a portion of the gelatinous substance in the form of soluble gelatine, or of altering the gelatinous fibre, so as to render it incapable of speedily and effectually combining with the tannin or tannic acid, and the pores of the skin are so impregnated with lime, as to prevent the tanning principle from operating freely, or reaching the heart of the skins."

And, after enumerating other obstructions, he observes that the great object to be attained is "to find out some means of removing these obstructions and antagonist principles, and of bringing about a speedy and effectual combination of the gelatinous fibre of the hides or skins, and the tanning matter, and thus produce, in a short space of time, leather superior in weight, quality, and durability to any yet produced. The object of my improvements is to remove these difficulties and obstructions, either by extracting the lime with which hides and skins are impregnated in the process of removing the hair, or removing the hair and

epidermis from the hides, or skins, without the use of lime, by means not hitherto attempted."

The doctor then states that by steeping the hides or skins in a mixture of sugar, or any other saccharine matter and water, for from two to four days, according to the size of the skin, the lime is entirely removed. "The action," says the doctor, "of the sugar and pyroxylic or wood spirit upon the lime is so rapid, that in the largest skins the lime is entirely removed and the skins are rendered fit to receive and imbibe the tannic acid, and thus the operation of tanning is perfectly accomplished in a very short time."

We know the immense prejudice which exists against all new methods of tanning, especially if the tanning is accomplished in a short time. This, we believe, has been engendered by the signal failure of almost every attempt at improvement. It is worth while therefore to inquire a little into the philosophy of the doctor's discoveries, and to endeavour to ascertain from known facts whether the doctor is likely to be more fortunate than his predecessors in the same line.

All great chemists have described lime as a solvent of gelatine; indeed the fact is easy of demonstration by placing a small quantity of pure gelatine or isinglass in limo water. No doubt therefore can exist when we reflect on the energetic action of lime on organic bodies, especially on animal tissue, that the destruction of a great portion of the most valuable part of the skin must be the result of employing lime in taking off the hair.

The means hitherto employed to extract the lime has been the application of an alkaline lixivium called "bate." This is composed of the dung of pigeons, and other domestic birds, but this mixture has been found not to remedy the evil, for the bate does not dissolve the lime, but merely destroys its causticity by converting it into carbonate or chalk. Besides which it causes the destruction of a portion of the gelatinous tissue by the fermentation created by the decomposition of the animal matter in the bate.

Sugar, on the contrary, is well known to be a great preserver of the gelatinous fibre; our domestic experience proves this beyond controversy, and it has been demonstrated by Mr. Ramsay, of Glasgow, in a series of experiments published in "Nicholson's Journal" for 1807, that sugar is a powerful solvent of lime. We think therefore that we see in the doctor's discovery the means of removing "the antagonistic principle, and of bringing about a speedy and effective combination of the gelatinous fibre with the tanning matter," and that the public may safely conclude that the doctor has been fortunate enough to discover the application of a remedy for an evil which has long baffled the skill of chemists and others, and which will go far to realize the enormous advantages in the quantity and quality of leather, to which we have before alluded.

**THE WOOD-CARVER.**—At a general meeting of the profession of wood-carvers, held April 4th, 1845, it was moved by Mr. R. Moore, "that the services of Mr. W. G. Lock, wood-carver, in conducting the correspondence with her Majesty's commission on the fine arts, relative to the decoration of the new Houses of Parliament, on behalf of the wood-carvers, have entitled him to the warmest approbation of the profession. And this meeting, desirous to testify its estimation of the same, recommends a voluntary subscription throughout the profession, to present him with a suitable acknowledgment of the same." The motion was seconded by Mr. Gray, and carried unanimously. A committee of nine gentlemen were appointed to receive the subscriptions, and to decide on the nature of the testimonial, &c. Subscriptions were received from 221 wood-carvers, residents of London, Dublin, York, Cambridge, Hull, Manchester, Brighton, Leeds, Peterborough, Warwick, Lenington, &c. The result has been that the committee have publicly presented to Mr. W. G. Lock a splendid watch and apertures, engraved with a suitable inscription commemorative of the same. Mr. Lock has for some time past been acting as honorary secretary to the general body of wood-carvers, metropolitan and provincial, who have been in correspondence with the royal commission upon the subject of the decoration of the new Houses of Parliament with wood-carving.

## Correspondence.

THE ROUND TOWERS OF IRELAND.

SIR,—Will you permit me, through the medium of your paper, to make one or two observations to the writer of a letter in *The Builder* of June 28, on the round towers of Ireland, signed "J. K."

Your correspondent says that they doubtless were intended originally for the convenience of the architects employed in constructing churches, for he says, "That the towers and churches are invariably found together." Now, if he means to say that the towers are only to be found near churches, I can only say, that I have not found such to be the case. I have had occasion to visit Ireland frequently, and of course those memorials of the past, concerning which there is so much doubt occupied no small share of my attention. I have examined them carefully, and have not the least doubt as to their being of the same date as the buildings they adjoin. But I have found them near the castle quite as often as the church; so that I do not think they were originally built by the architect merely to protect his workmen and suit his own convenience, far from it. That they were erected as reconnoitring towers no one can doubt, but not for the special use your correspondent seems to think. They were intended as part and parcel of the building about to be raised (be it castle or church), as a necessary appendage for the safety and welfare of the inmates of the main building; the stability of the workmanship is a sufficient proof that it was for no temporary purpose, but to last for ages. Further, I have observed that in nine cases out of ten they are within sight of others; so that in case of a general enemy appearing, signals to that effect might be conveyed from place to place, to rouse the natives to arms to repel the invading foe. Trusting you will pardon this intrusion on your time and attention, and give publicity to these few remarks,—I am, Sir, &c., V. KRITAS.

NEW DOORS AT YORK MINSTER—STONE USED AT DOOR OF PARLIAMENT.

SIR,—Perhaps it is only justice, in reference to your accurate and explanatory engravings of the western doors, York Minster, to name, that the framing and plainer portions were made by Mr. James Wallace, of Newcastle-upon-Tyne, and the carving by Mr. Scott of the same place; the latter artist is one of the best carvers in wood of the present age, and is also an expert modeller.

To clear up a doubt you have the goodness to state what kind of stone the external ashlar work in the new Houses of Parliament is composed of—whether lime or sand-stone? I mean the plain portions, without reference to the carved surfaces. F. TYRRELL.

Tynemouth, near Newcastle.

\* \* \* Magnesian lime-stone, from quarries between Worsop and Mansfield, in Yorkshire, and called Anston or Norfol stone.

**PROPOSAL TO CONVEY LETTERS 100 LEAGUES PER HOUR.**—An original, if we cannot call it a clever, idea was communicated to the Paris Academy of Sciences on the 23rd ult. by the Baron de Colonge an attaché of the French legation in Bavaria. The rate he proposes to convey letters is not so quick as that of the English inventor, who has taken out a patent for conveying them at the rate of 400 miles an hour through an exhausted tube, like Mr. Vallance's tunnel, which was to transport passengers from London to Brighton in 10 minutes; but it is quick enough—and how does the scientific baron propose to accomplish his feat? Listen, gentle reader, and wonder at the progress of science in this nineteenth century. He would build small houses at stations, and provide each of them with a revolving lever, 300 feet long, which should throw the mail to the next station, and so on along the whole line. Would it not be more easy to adopt the school-boy plan of trap and ball? We need not say that the Academy attached little importance to the communication of the Baron de Colonge, and that it is not probable a committee will be appointed to examine and report upon his scheme.